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IS 11695 (1986): Inhibited Type Machinery Oils [PCD 3: Petroleum, Lubricants and their Related Products]



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Indian Standard
SPECIFICATION FOR
INHIBITED TYPE MACHINERY OILS

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR INHIBITED TYPE MACHINERY OILS

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Indian Standard

SPECIFICATION FOR INHIBITED TYPE MACHINERY OILS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 15 May 1986, after the draft finalized by the Lubricants and Related Products Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

0.2 The requirements of general purpose machinery and spindle oils (non-additive type) are covered in IS : 493 (Parts 1 and 2)-1981*. With the advancement in machine tool technology and the introduction of sophisticated precision equipment, the stress on lubricant in terms of load and temperature has increased considerably. Keeping in view the application requirements and the environmental operating conditions, a need was felt to design general purpose lubricants to provide adequate anti-rust protection. This specification accordingly covers the requirements of machinery oils which have been fortified with additives to provide the desired service.

0.3 The oil industry in the country has already adopted ISO viscosity classification system for industrial liquid lubricants. Therefore the various grades covered in this standard have been specified to fall in line with this system which is described in IS : 9466-1980†.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960‡. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and methods of test for inhibited type machinery oils.

*Specification for general purpose machinery and spindle oils:

Part 1 Machinery oils (*first revision*), and

Part 2 Spindle oils (*first revision*).

†Specification for viscosity classification for industrial liquid lubricants.

‡Rules for rounding off numerical values (*revised*).

IS : 11695 - 1986

1.2 This standard is basically intended to cover lubricants for general purpose, once through (total loss) lubrication systems of machine tools, textile mills, paper mills, sugar mills and other allied industrial equipment. Heavier grades of these lubricants are also to be used for the lubrication of ordinary type of open gears where the oil is applied by means of an oil can. Further, VG 100 and VG 150 grades are recommended for crankcase lubrication of vertical steam engines. These grades are also used in hydraulic/circulation system which frequently require considerable quantity of lubricant top-up.

2. GRADES

2.1 The oil shall conform to one of the 8 viscosity grades as distinguished by the prescribed viscosity limits given in Table 1.

3. REQUIREMENTS

3.1 General — The material shall be made from refined mineral oils. It shall be clear, bright and free from water, dirt and other suspended impurities.

3.2 The oils shall also comply with the requirements given in Table 1.

4. PACKING AND MARKING

4.1 Packing — As agreed to between the purchaser and the supplier.

4.2 Marking — Following shall be marked on the containers:

- a) Name, grade and net mass of the material;
- b) Manufacturers' name and trade-mark, if any; and
- c) Date of manufacture.

4.2.1 The material may also be marked with Standard Mark.

4.3 The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

TABLE I REQUIREMENTS FOR INHIBITED TYPE MACHINERY OILS

(Clauses 2.1 and 3.2)

SL No.	CHARACTERISTICS	REQUIREMENTS								METHOD OF TEST REF TO IS : 1448*
		Grade VG 32	Grade VG 46	Grade VG 68	Grade VG 100	Grade VG 150	Grade VG 220	Grade VG 320	Grade VG 460	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
i)	Kinematic viscosity, in cSt at 40°C	28·8 to 35·2	41·4 to 50·6	61·2 to 74·8	90·0 to 110·0	135 to 165	198 to 242	288 to 352	414 to 506	P : 25
ii)	Pour point, °C, <i>Max</i>	0	0	0	0	0	0	0	0	P : 10
iii)	ASTM colour, <i>Max</i>	6·5	6·5	6·5	7·0	7·5	8·0	8·0	8·0	P : 12
iv)	Flash point (COC), °C, <i>Min</i>	150	160	160	170	170	200	220	220	P : 69
v)	Ash, percent by mass, <i>Max</i>	0·2	0·2	0·2	0·2	0·2	0·2	0·2	0·2	P : 4
vi)	Total acidity, mg KOH/g, <i>Max</i>	0·30	0·30	0·30	0·30	0·30	0·30	0·30	0·30	P : 2
vii)	Inorganic acidity	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	P : 2
viii)	Copper strip corrosion at 100°C, 3 h, <i>Max</i>	1	1	1	1	1	1	1	1	P : 15
ix)	Rust test, distilled water, 60°C, 24 h	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	P : 96 (Procedure A)

*Methods of test for petroleum and its products.

5. SAMPLING

5.1 Representative samples of the material shall be drawn as prescribed in IS : 1447-1966*.

5.2 Number of Tests — All characteristics given in the specification shall be tested on the composite sample.

5.3 Criteria for Conformity — The lot shall be declared as conforming to the requirements of the specification if all the test results on the composite sample meet the relevant specification requirements.

*Method of sampling of petroleum and its products.

(Continued from page 2)

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AMENDMENT NO. 1 FEBRUARY 2013
TO
IS 11695 : 1986 SPECIFICATION FOR INHIBITED TYPE MACHINERY
OILS

[Page 5, Table 1, Sl No. (ix)] — Insert the following new requirement:

Sl No. (1)	Characteristics (2)	Requirements (3) to (10)	Method of Test, Ref to IS 1448* (11)
x)	Viscosity Index, <i>Min</i>	90	P : 25

(PCD 3)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 1 FEBRUARY 2013
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(PCD 3)

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